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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,672	04/03/2006	Eiichi Takahashi	283048US2PCT	2969

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EXAMINER	
CONNOLLY, MARK A	
ART UNIT	PAPER NUMBER
2115	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/01/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/559,672	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Mark Connolly	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 14-23* is/are rejected.

7)☐ Claim(s) *11-13 and 24-29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/6/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-29 have been presented for examination.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

Line 3 should not be indented and a ":" should be inserted after "comprising".

Lines 9-10 should be joined together as they are part of the same sentence.

3. Claim 6 is objected to because of the following informalities:

Line 3 should not be indented and a ":" should be inserted after "comprises".

On line 6, the "," after signals should be replaced with a ";".

On line 8, the "," after "elements" should be replaced with "; and".

On line 9, please insert "a" before "setting means".

4. Claim 14 is objected to because of the following informalities:

On line 5, please replace "," with ";".

On line 7, please replace ", and" with ";".

On line 9 please replace "," with ";".

5. Claim 19 is objected to because of the following informalities:

On line 5, please replace "," with ";".

On line 7, please replace ", and" with ";".

On line 9 please replace "," with ";".

Appropriate correction is required.

6. Claims 11-13 and 24-29 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim ***cannot depend from any other multiple dependent claim.*** See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-3, 6-8, 14-16 and 19-22 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 12-14 and 16-18 of U.S. Patent No. 6658581 to Takahashi et al. in view of U.S. Patent No. 6721892 to Osborn et al [Osborn] in view of U.S. Patent No. 5428764 to Maskas.

Osborn teaches supplying a system with a variable voltage supply [col. 5 lines 9-18], which Maskas teaches introduces timing skew since the system experiences varying voltage levels [col. 1 lines 42-45]. It would have been obvious to one of ordinary skill in the art to include the teachings of Osborn and Maskas into the Takahashi system because it provides a

means to conserve power while still maintaining synchronous operation as required by Takahashi et al [col. 1 lines 7-12].

9. Claims 1-3, 6-8, 14-16 and 19-22 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 12-13 and 16-17 of U.S. Patent No. 6993672 to Takahashi et al. in view of U.S. Patent No. 6721892 to Osborn et al [Osborn] in view of U.S. Patent No. 5428764 to Maskas.

Osborn teaches supplying a system with a variable voltage supply [col. 5 lines 9-18], which Maskas teaches introduces timing skew since the system experiences varying voltage levels [col. 1 lines 42-45]. It would have been obvious to one of ordinary skill in the art to include the teachings of Osborn and Maskas into the Takahashi system because it provides a means to conserve power while still maintaining synchronous operation as required by Takahashi et al [col. 1 lines 7-12]. Furthermore, it is obvious that a genetic algorithm is generated through genetic programming.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-10 and 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al [Takahashi] JP02001043261A in view of Osborn in view of Maskas.

12. Referring to claim 1, Takahashi teaches the digital system that carries out digital processing in accordance with a single or a plurality of digital clock signals to perform a prescribed basic function, the digital system comprising:

a. a plurality of delay elements provided therein each comprising a circuit element that changes a delay time according to a value indicated by a control signal and is inserted in each of a plurality of clock circuits that supply the clock signals, and a plurality of holding circuits that hold a plurality of control signals applied to the plurality of delay elements, characterized in that the values of the plurality of control signals held by the plurality of holding circuits are changed by an external apparatus in accordance with a probabilistic search technique so that a basic function of the digital system satisfies prescribed specifications [fig. 1 and ¶'s 0040, 0042].

Although Takahashi teaches the digital system for adjusting a delay time, it is not explicitly taught that the digital system is supplied with power from a variable output voltage power supply apparatus. Osborn teaches supplying a system with a variable voltage supply [col. 5 lines 9-18]. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the variable voltage supply into the Takahashi system because Osborn teaches that the performance of a device can be throttled back when its "maximum capacity" is not required thus conserving power.

Although the Takahashi-Osborn system teaches the digital system for adjusting a delay time and supplying the system with a variable voltage supply, it is not explicitly taught that the delay is adjusted in response to the system being supplied with the variable voltage supply. Maskas teaches that timing skew can be introduced when a system experiences varying voltage

levels [col. 1 lines 42-45]. Because Takahashi is concerned with synchronous operation [¶ 0001] and because the Takahashi-Osborn system adjusts the voltage supplied to the system during operation, which Maskas suggests, "affect[s] clocking skew," it would have been obvious to one of ordinary skill in the art to correct the skew introduced when adjusting the voltage supply using the means taught by Takahashi because it would allow the system to maintain synchronous operation.

13. Referring to claims 2 and 3, Takahashi teaches the probabilistic search technique for adjusting the control signals is in accordance with a genetic algorithm or genetic programming [claims 2 and 3 and ¶'s 0021-0023].

14. Referring to claim 4, Maskas teaches that skew is introduced when voltage levels in the system vary [col. 1 lines 42-45]. Therefore, the Takahashi-Osborn-Maskas system would adjust the control signals to compensate for clock skew when the voltage level is adjusted in order to maintain synchronous operation.

15. Referring to claim 5, Osborn teaches providing a voltage to the system, which is less than a value designed for the system to operate at maximum capability [col. 5 lines 9-18]. The design value of the output voltage is interpreted as the output voltage required when operating at maximum capability. Therefore, the Takahashi-Osborn-Maskas system would adjust the control signals to compensate for clock skew associated when the voltage level is reduced below the design value in order to maintain synchronous operation.

16. Referring to claims 6-10, 14-18 and 19-23, these are rejected on the same basis as set forth hereinabove. Takahashi, Osborn and Maskas teach the system and therefore teach the method performed by the system.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Connolly whose telephone number is (571) 272-3666. The examiner can normally be reached on M-F 8AM-5PM (except every first Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on (571) 272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark Connolly
Examiner
Art Unit 2115

mc
February 21, 2007